Remote Sensing and Unmanned Aerial System Technology for Monitoring Terrestrial Ecosystems: A Case Study of Nigeria

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ABSTRACT:

In 2013, the World Economic Forum's Global Agenda Council on Emerging Technologies ranked Remote Sensing as 7th on the list of 10 most promising technology trends in the world showing the metamorphosis of remote sensing over the last Century. Remote Sensing has rapidly evolved from the use of Messenger pigeons, kites, and unmanned aerial balloons in early times to hyper spectral sensors and unmanned aerial vehicles in more recent times. Terrestrial Ecosystem as a dynamic component occupies about 144,150,00Sqkm of the earth surface. Therefore, constant monitoring becomes imperative towards identifying the changes and trends over time. To achieve this, several remote sensing techniques have been utilized to good effect (Landsat MSS, ETM+, Synthetic Aperture Radar, UAVs etc.) and UAVs have emerged as one of the prevailing technologies. The use of remotely sensed data collected using UAVs has seen significant growth in recent years for a wide range of terrestrial applications. UAVs offer many benefits including flexibility and rapidity of use, low per-flight costs and the ability to collect hyper spatial data. The research is tailored towards the emergence of UAS platforms and sensors and their relevance to the monitoring of Terrestrial Ecosystems in Nigeria.